

REMARKS

Claims 1-11 have been rejected under the second paragraph of 35 USC § 112 as being indefinite. This rejection is respectfully traversed.

(a) The F factor was defined in the original specification. That should have been sufficient. At any rate, to advance prosecution, the definition has been included within the claims.

(b) The purpose of the second paragraph of 35 USC § 112 is to “apprise those skilled in the art of the definite features of the invention and [give] notice to others of what the patent claims as a monopoly.” *Stauffer Chemical Company v. Watson, Com'r. Pats.*, 100 USPQ 209, 210 (DC DC 1954)

“Words of degree such as the word ‘pure,’ do not in and of themselves render a claim fatally deficient.” *Burlington Industries v. Quigg*, 229 USPQ 916 (DC DC 1986).

“When a word of degree is used the district court must determine whether the patent’s specification provides some standard for measuring that degree.” *Seattle Box Co., Inc. v. Industrial Crating & Packing, Inc.*, 221 USPQ 568, 574 (Fed. Cir. 1984).

The relevance of the cited cases to this rejection is clear. The same term, “pure,” is in controversy, and the definition for that term is given at page 5, lines 29-32, of the original disclosure so that when the claims are read in light of the specification, the meaning of the word “pure” in those claims is clear to a person skilled in this art. *In re Marosi*, 218 USPQ 289, 292 (Fed. Cir. 1983).

(c) The preferences have been removed from the claims and new claims

have been added to cover those preferences. Claims 9 and 11 are directed to an apparatus particularly useful for the process of claim 1. The process limitations recited merely set forth the structural connections of the elements relative to each other required by the examiner.

Claim 9 has been rejected under 35 USC § 103(a) as being unpatentable over applicants' disclosure of admitted prior art or the Knott publication. This rejection is respectfully traversed.

Although dividing wall columns and systems of thermally coupled distillation columns have been acknowledged as being in the prior art, neither the acknowledgments nor the Knott publication discloses such a system provided with droplet precipitators at a side offtake. Thus, there would have been no motivation for one of ordinary skill in this art to modify the apparatuses of the prior art to especially adapt them to the process which is the feature of this invention.

Claims 10 and 11 have been rejected under 35 USC § 103 as being unpatentable over the admitted prior art or the Knott publication in view of Long, US 5,100,634 (Long). This rejection is respectfully traversed.

Long discloses boiler stacks for removing sulfur dioxide from boiler stack gas by ammonium sulfite scrubbing. The relationship of this type of apparatus to the types of distillation apparatuses here in question is not at all clear from the disclosure or from the examiner's discussion thereof. Even if the disclosure of Long were at all relevant, the demister indicated at the top of the boiler stack is at the top of the column, not at a

side offtake. More importantly, however, the other references relied on and Long are from quite different arts and relate to quite different types of apparatus and are not properly combined to suggest obviousness. *In re Clay*, 966 F.2d 656, 23 USPQ2d 1058, 1060 (Fed. Cir. 1992); *In re Wright*, 848 F.2d 1216, 6 USPQ2d 1959 (Fed. Cir. 1988).

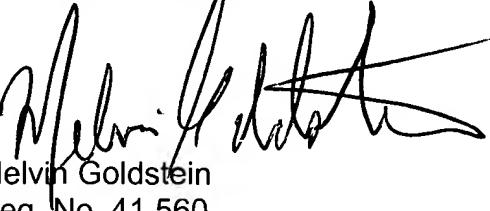
In light of the foregoing amendments and remarks, it is believed that all rejections of record have been obviated and allowance of this application is respectfully requested.

A check in the amount of \$110.00 is attached to cover the required one month extension fee.

Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees to Deposit Account No. 11-0345. Please credit any excess fees to such deposit account.

Respectfully submitted,

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COMPLETE LISTING OF ALL CLAIMS IN THE APPLICATION

1. (currently amended) A process for the continuously operated fractional distillation of crude ammonia to give a low boiler fraction, a high boiler fraction and an intermediate-boiling pure fraction in a distillation apparatus configured either as a dividing wall column or as a system of thermally coupled distillation columns, wherein the low boiler fraction is taken off at the top of the distillation apparatus, the intermediate-boiling pure fraction is obtained at a side offtake and the gas loading of the distillation column is restricted so that the operating pressure is in the range from 2 to 30 bar and the F-factor measure of the loading due to the gas stream in the column, as defined by unit length per unit time multiplied by the root of the total density of the gas, does not exceed $2.0 \text{ Pa}^{0.5}$.
2. (original) A process as claimed in claim 1, wherein the operating pressure is in the range from 10 to 20 bar.
3. (currently amended) A process as claimed in claim 1, wherein the F-factor measure of the loading due to the gas stream in the column does not exceed $1.5 \text{ Pa}^{0.5}$; preferably does not exceed $1.0 \text{ Pa}^{0.5}$.
4. (original) A process as claimed in claim 1, wherein the intermediate-boiling pure fraction is obtained at a side offtake which is provided with droplet precipitators.
5. (original) A process as claimed in claim 4, wherein the droplet precipitators are present in the form of demister packing.
6. (original) A process as claimed in claim 1, wherein part of the intermediate-boiling

pure fraction is taken off in liquid form and a further part of the intermediate-boiling pure fraction is taken off in gaseous form.

7. (currently amended) A process as claimed in claim 1, wherein the crude ammonia contains from 95.0 to 99.9% by weight, ~~preferably from 99.0 to 99.7% by weight~~, of ammonia and the intermediate-boiling pure fraction comprises at least 99.99% by weight, ~~preferably at least 99.999% by weight~~, of ammonia.
8. (original) A process as claimed in claim 1, wherein the intermediate-boiling pure fraction is taken off under level control and the control parameter used is preferably the liquid level at the bottom of the column.
9. (currently amended) A distillation apparatus configured either as a dividing wall column or as a system of thermally coupled distillation columns particularly adapted for carrying out the a process as claimed in claim 1 for the continuously operated fractional distillation of crude ammonia to give a low boiler fraction, a high boiler fraction and an intermediate-boiling pure fraction wherein the low boiler fraction is taken off at the top of the distillation apparatus, the intermediate-boiling pure fraction is obtained at a side offtake which is provided with droplet precipitators and the gas loading of the distillation column is restricted so that the operating pressure is in the range from 2 to 30 bar and the F-factor measure of the loading due to the gas stream in the column as defined by unit length per unit time multiplied by the root of the total density of the gas, does not exceed $2.0 \text{ Pa}^{0.5}$.

10. (canceled)
11. (currently amended) A distillation apparatus as claimed in claim ~~10~~ 9, wherein the droplet precipitators are present in the form of demister packing.
12. (new) A process as claimed in claim 3, wherein the measure of the loading due to the gas stream in the column does not exceed $1.0 \text{ Pa}^{0.5}$.
13. (new) A process as claimed in claim 7, wherein the crude ammonia contains from 99.0 to 99.7% by weight of ammonia.
14. (new) A process as claimed in claim 7, wherein the intermediate-boiling pure fraction comprises at least 99.999% by weight of ammonia.